



Climatic factors correlate with innate immune response in children with *Dermatophagoides farinae*-induced allergic asthma

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Abstract:

OBJECTIVE: To determine the effect of climatic factors on immune markers in children with *Dermatophagoides farinae* induced asthma. **METHODS:** Serum concentrations of macrophage migration inhibitory factor (MIF), eosinophil cationic protein (ECP) and *D. farinae*-specific immunoglobulin E (DF-sIgE), together with peripheral blood eosinophil counts, were measured in children with *D. farinae* induced (n Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 75) or non-*D. farinae*-induced asthma (n Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 17), and in healthy controls (n Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 30). Mean temperature and relative humidity in the month before enrolment were calculated from meteorological data. **RESULTS:** MIF, ECP and eosinophil counts were significantly higher in children with *D. farinae*-induced asthma than in controls, but comparable with non-*D. farinae*-induced asthma. Children with *D. farinae*-induced asthma in a low temperature (< 16 degrees C) or low relative humidity (< 70%) climate had significantly lower DF-sIgE, MIF, ECP and eosinophil counts than those in a high temperature or high humidity climate. DF-sIgE correlated positively with MIF, ECP and eosinophil count in *D. farinae*-induced asthma. **CONCLUSIONS:** Temperature and humidity influenced MIF, ECP, eosinophil count and DF-sIgE in *D. farinae*-induced asthma. Understanding this relationship may provide new strategies for asthma prevention and treatment.

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Meteorological Factors, Temperature

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

Urban

Geographic Location:

resource focuses on specific location

Climate Change and Human Health Literature Portal

Non-United States

Non-United States: Asia

Asian Region/Country: China

Health Impact: ☒

specification of health effect or disease related to climate change exposure

Respiratory Effect

Respiratory Effect: Asthma

Population of Concern: A focus of content

Population of Concern: ☒

populations at particular risk or vulnerability to climate change impacts

Children

Resource Type: ☒

format or standard characteristic of resource

Research Article

Timescale: ☒

time period studied

Time Scale Unspecified